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### SP493 Microwave Handbook

The University of Tennessee Agricultural Extension Service

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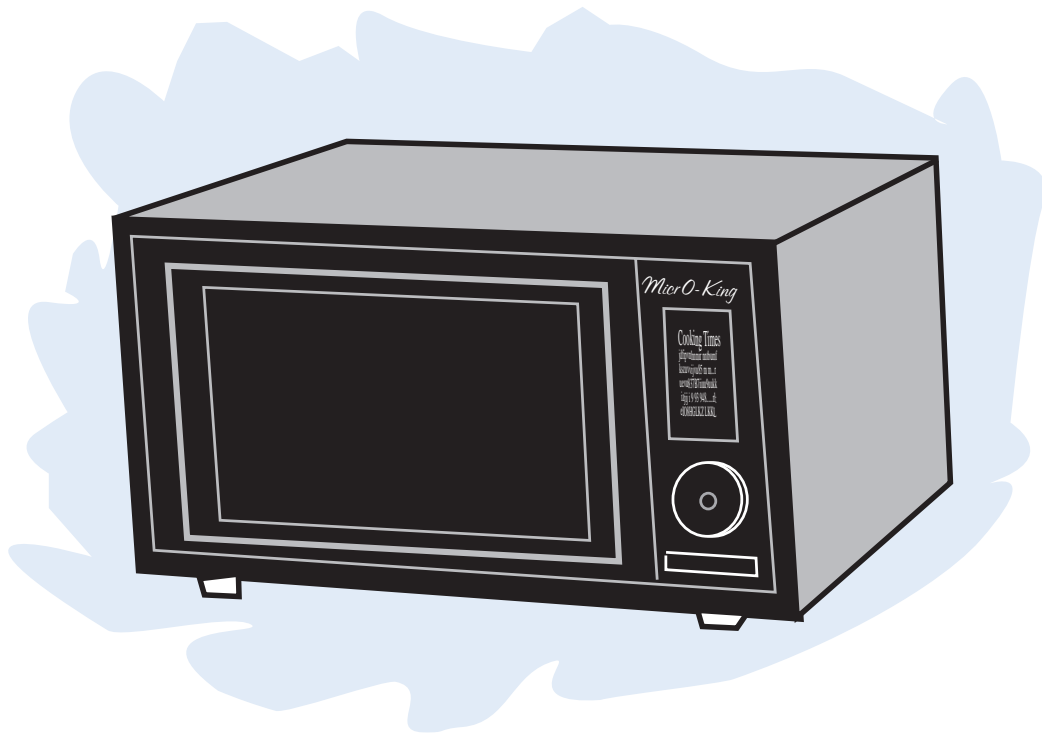
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# Microwave Handbook

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# Microwave Handbook

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Food, Nutrition & Health

Many of us use microwave ovens at home, at work or both. Microwaves heat food in a different way than a regular oven heats. For example, “cold or hot spots” can occur because of the irregular way microwaves are absorbed by food. Stirring occasionally will help microwaved food heat evenly.

Below are some simple, but effective, steps for safe cooking when using a microwave oven.

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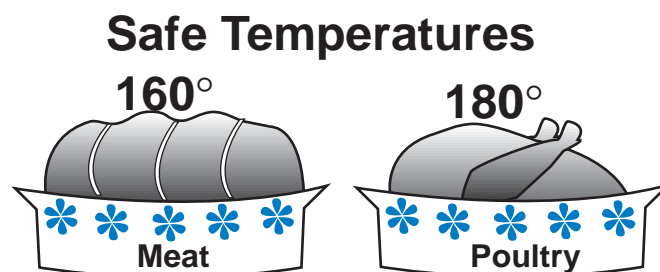
## Defrosting

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- **Thaw food using the defrost button on your microwave.** Follow the manufacturer’s instructions because times may vary.
- **When using the microwave to defrost foods, plan to finish the cooking right away.** Some areas of larger food items may begin to cook during the defrost cycle. Food defrosted in the microwave oven is warm enough for bacteria to start multiplying, so finish cooking right away.
- **Remove food from store wrap prior to thawing.** Foam insulated trays and some store wraps are not safe for microwave cooking. They can warp or melt from the food’s heat, possibly causing chemicals to get into the food.
- **Don’t defrost or hold food at room temperature for more than two hours.** It is easy to forget about a food item thawing in the microwave oven. Set a timer to let you know when the thawing time is up.
- **Don’t refreeze food thawed in the microwave.** Some areas of food begin to cook when thawed in the microwave. This very low heat promotes growth of any bacteria present. Freezing stops the growth of bacteria, but it doesn’t kill what’s already there. Though microwave thawing of food is safe, food thawed in the microwave oven should be cooked right away. If needed, foods may be refrozen after cooking.

# Cooking

- **Debone large pieces of meat.** Bone can shield the meat around it from thorough cooking.
- **Space food items evenly in a covered dish** and add a little liquid. Under the cover, steam helps kill bacteria and promotes even heating. Either microwave-safe plastic wrap or a glass cover works well. Turn up a small corner of plastic wrap to allow some steam to escape. Plastic wrap shouldn't touch the food.
- **Cook large pieces of meat at 50 percent power for longer periods of time.** This allows the heat to reach inner portions without overcooking outer areas. Commercial oven cooking bags can also promote even cooking and provide a tender product.
- **Move the food around in the dish several times during cooking.** Stir soups or stews. If you don't have a turntable, turn the entire dish occasionally during cooking. This is especially important for foods like casseroles that can't be stirred.
- **Do not cook whole, stuffed poultry in the microwave.** The bones and thickness of poultry prevent even cooking of the stuffing deep inside the bird. You can safely microwave unstuffed whole poultry.
- **Never partially cook food.** If you plan to combine microwave cooking with roasting, broiling or grilling, finish cooking the microwaved foods right away.
- **Use a temperature probe or meat thermometer to be sure food has reached a safe temperature.** Check the temperature in several places, avoiding fat and bone. It should reach 160 F for meat; 180 F for poultry.



- **Make allowances for oven wattage variations.** Because ovens vary in power and operating efficiency, make sure food is done. Use a meat thermometer and color to check doneness. Meat and meat juices should not be pink.
- **Observe the standing time in the recipe.** The standing time is necessary to complete the cooking process. Microwave cooking creates pockets of heat in food. Allowing the food to stand lets the heat spread throughout the food.

## Warming Precooked Foods

- **Cover precooked foods with microwave-safe plastic, waxed paper or a glass lid.** This will keep moisture in and provide even cooking.
- **Heat leftovers and precooked food to at least 165 F.** Heat gravies, sauces and soups to boiling.
- **Use caution when warming baby food.** A few microwave tips can help avoid infant burns or food poisoning. To microwave baby food, remove a serving from the jar and heat. On high power, 15 seconds of heating time will generally be enough for four ounces of solid food. Stir, let stand 30 seconds and taste test before using. Don't taste for temperature using the baby's spoon. This spreads bacteria from your mouth to the baby's food. Fats overheat easily, so do not microwave baby food meat products or eggs. Bottles with disposable liners should not be microwaved, since hot spots in milk could cause the liner to break and spill hot milk on the baby. Hard plastic baby bottles can be warmed in the microwave if you remove the cap and nipple first. For eight ounces of cold milk or formula, microwave on high 30 seconds. Let stand for one minute. Cover, shake to even the temperature and test on top of your hand before serving.

## What Utensils, Wraps and Cookware Should Be Used in the Microwave?

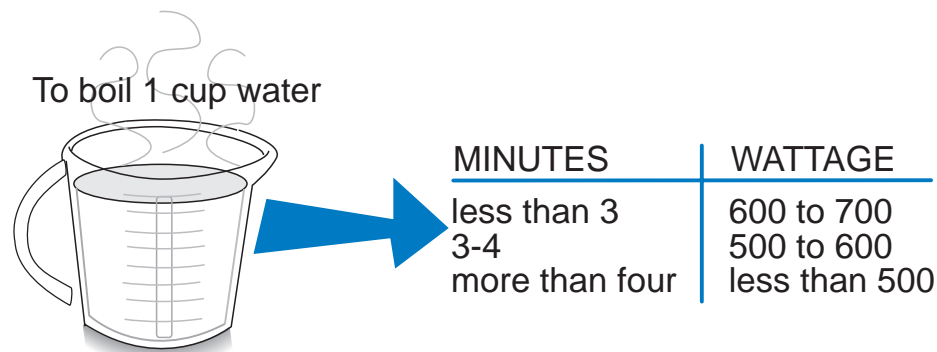
Glass and glass ceramic cookware are safe for microwave cooking. But what about other materials?

- **Use only those containers and products that have been approved for microwave use.** These items are designed for the high temperatures which can occur when cooking foods that are high in fat or sugar.
- **Avoid the use of cold storage containers.** Margarine tubs, whipped topping bowls and cottage cheese cartons, for example, may not be safe for microwaving. High heat could cause chemicals from these containers to get into the food.
- **Waxed paper is safe.** Never use recycled paper goods in the microwave. Check other paper goods such as towels, plates and napkins to see if they are labeled microwave safe. Plain white paper goods are generally safer than colored or printed goods.
- **Never use brown grocery bags or newspapers to microwave.** These contain recycled materials and metals which could start a fire.
- **Avoid letting plastic wrap touch foods during microwaving.** It's fine to cover containers with plastic wrap, but unless the wrap is a heavy-duty type, it could melt in contact with hot foods.

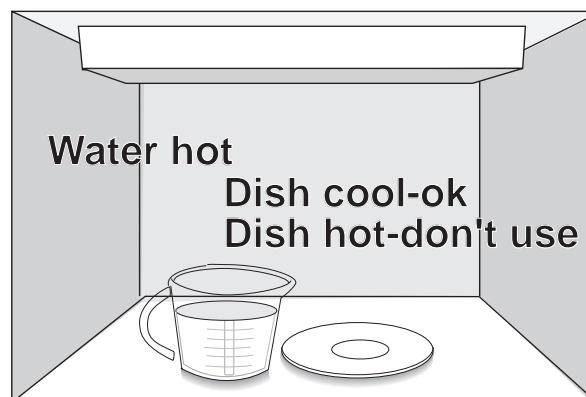
- **Oven cooking bags are safe for use in the microwave.** They are made from a very tough nylon material. Oven bags also promote even cooking, which helps meat reach safe temperatures throughout.
- **Follow package directions carefully when heating microwavable foods.** Directions are there to help prevent harm to you or your oven. Don't eat from packages that become "charred" in cooking. Handle them carefully to avoid burns.
- **Do not re-use trays and containers provided with frozen foods or other microwave convenience products.** They have been designed for one-time use with that specific food only.

Some microwave heating instructions are based on oven wattage.

**To determine the wattage of your microwave oven:** Fill a glass measuring cup with exactly 1 cup of tap water. Microwave, uncovered, on "high" until water begins to boil. If boiling occurs in less than three minutes, the wattage is 600 to 700; three to four minutes, the wattage is 500 to 600; more than four minutes, the oven wattage is less than 500 watts.



**To determine if a dish is safe for microwave use:** Put the empty dish in the microwave oven with a cup of water. Microwave on high (full power) for one minute. If the empty dish is warm or hot, do not use. If the empty dish is cool and the water is hot, this dish is safe to use. A dish that becomes hot absorbs energy and will lengthen cooking time or could break during the cooking process.



For additional information on food safety of phone your county Extension office or the USDA Meat and Poultry Hotline 1-800-535-4555.

Adapted from information released by USDA's Meat and Poultry Hotline and The Food and Drug Administration.



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Agricultural Extension Service

Billy G. Hicks, Dean